

CLAIMS

1. A mobile communication system including a plurality of radio base stations and a terminal device that can connect with said radio base stations, comprising:

- 5 deterioration detection means, in a state that said terminal device handovers from a first radio base station to a second radio base station and performs communication through a path which passes through said first radio base station, for detecting deterioration in a communication state between said terminal device and said second radio base station; and
- 10 distribution means, when said terminal device performs a handover to a third radio base station, caused by that the deterioration in said communication state is detected, in addition to the packets addressed to said terminal device, which start to be buffered by said first radio base station before said terminal device performs the handover and are buffered in said first radio base station after the handover of said terminal device is completed, for distributing packets addressed to said terminal device, which are newly received, to said terminal device through said third radio base station, in an order of reception.

2. The mobile communication system according to claim 1, wherein said deterioration detection means is configured to determine deterioration in said communication state by a detection result of a signal reception power.

3. The mobile communication system according to claim 1, wherein said deterioration detection means is configured to determine deterioration in said communication state by a bit error rate.

4. The mobile communication system according to anyone of claims 1 to 3, wherein said terminal device is provided with said deterioration detection means.

5. The mobile communication system according to anyone of claims 1 to 3, wherein said radio base station is provided with said deterioration detection means.

6. The mobile communication system according to anyone of claims 1 to 5, further comprising request means for requesting that said second radio base station makes said first radio base station buffer the packets addressed to said terminal device before said terminal device performs a handover.

7. The mobile communication system according to anyone of claims 1 to 6, wherein said terminal device has change means for changing a radio base station to which the terminal device is going to perform a handover, to another radio base station, in accordance with a result of researching a communication state with another radio base station.

8. A radio base station that is used while being connected to a terminal device, comprising:

deterioration detection means for detecting deterioration in a communication state with said terminal device;

5 detection means for detecting whether or not packets addressed to said terminal device are forwarded from another radio base station; and storage means for temporarily storing the packets addressed to said

terminal device when the deterioration in the communication state is detected and the packets addressed to said terminal device are not forwarded from another radio base station.

9. The radio base station according to claim 8, further comprising request means for requesting another radio base station to temporarily store the packets addressed to said terminal device when the deterioration in the communication state is detected and the packets addressed to said terminal device are forwarded from said another radio base station.

10. The radio base station according to claim 8, further comprising request means for requesting said another radio base station to temporarily store the packets addressed to said terminal device when a request that another base station temporarily buffers the packets addressed to said terminal device is received from said terminal device and the packets addressed to said terminal device are forwarded from said another radio base station.

11. A terminal device that can connect with a plurality of radio base stations, comprising:

deterioration detection means for detecting deterioration in a communication state with the radio base stations that are connected;

5 detection means for detecting whether or not the packets addressed to said terminal device are forwarded from another radio base station; and

request means for requesting said radio base station to buffer the packets addressed to said terminal device when the deterioration in the communication state is detected and the packets addressed to said terminal

10 device are not forwarded from another radio base station.

12. The terminal device according to claim 11, further comprising means for requesting said radio base station to ask another radio base station to buffer the packets addressed to said terminal device when the deterioration in the communication state is detected and the packets addressed to said 5 terminal device are forwarded from said another radio base station.

13. The terminal device according to claim 11 or 12, wherein said deterioration detection means measures a reception characteristic in a communication with said connected radio base station and detects deterioration in said communication state.

14. The terminal device according to claim 13, wherein said reception characteristic measured by said deterioration detection means is one of a signal reception power from said connected radio base station, a bit error rate, and a packet error rate, or a combination thereof.

15. A program that is used in a radio base station connected to a terminal device: said program making said radio base station function as:

means for determining deterioration in a communication state with a connected terminal device;

5 means for determining whether or not the packets addressed to said terminal device are forwarded from another radio base station; and

means for temporarily buffering the packets addressed to said terminal device when the deterioration in the communication state is detected and the

10 packets addressed to said terminal device are not forwarded from another radio base station.

16. The program according to claim 15, making said radio base station function as means for requesting another radio base station to temporarily buffer the packets addressed to said terminal device when the deterioration in the communication state is detected and the packets addressed to said terminal device are forwarded from said another radio base station.

17. A program used in a terminal device that can be connected to a radio base station, said program making said terminal device function as:
5 means for determining deterioration in a communication state with a connected radio base station;
means for determining whether or not the packets addressed to said terminal device are forwarded from another radio base station; and
means for requesting said radio base station to temporarily buffer the packets addressed to said terminal device when the deterioration in the communication state is detected and the packets addressed to said terminal device are not forwarded from another radio base station.

10 18. The program according to claim 17, making said terminal device function as means for requesting said connected radio base station to ask another radio base station to temporarily buffer the packets addressed to said terminal device when the deterioration in the communication state is detected and the packets addressed to said terminal device are forwarded from said another radio base station.

19. A mobile communication method in a mobile communication system including a plurality of radio base stations and a terminal device that can connect with said radio base stations, comprising the steps of:

in a state that said terminal device handovers from a first radio base
5 station to a second radio base station and performs communication through
said first radio base station, when said terminal device performs a handover to a
third radio base station, caused deterioration in a communication state between
said terminal device and said second radio base station, making said first radio
base station start to buffer packets addressed to said terminal device before
10 said terminal device performs the handover; and

distributing packets addressed to said terminal device, which are newly
received, to said terminal device through said third radio base station in an
order of reception, in addition to the packets addressed to said terminal which
are buffered in by said first radio base station, after the handover of the terminal
15 is completed.

20. The mobile communication method according to claim 19, wherein
said deterioration in the communication state is determined by a detection result
of a signal reception power.

21. The mobile communication method according to claim 19, wherein
said deterioration in the communication state is determined by a bit error rate.

22. The mobile communication method according to claim 19, wherein
said deterioration in the communication state is determined by a packet error
rate.

23. The mobile communication method according to anyone of claims 19 to 22, wherein said deterioration in the communication state is detected in said terminal device.

24. The mobile communication method according to anyone of claims 19 to 22, wherein said deterioration in the communication state is detected in said radio base station.

25. The mobile communication method according to anyone of claims 19 to 24, further comprising the step of making said second radio base station request said first radio base station to buffer the packets addressed to said terminal device before said terminal device performs a handover.

26. The mobile communication method according to anyone of claims 19 to 25, further comprising the step of said terminal device changing a radio base station to which the terminal device is going to perform a handover to another radio base station in accordance with a search result of the communication state with another radio base station.